What is claimed is:

1. An apparatus used in spinal surgery for creating a space of selected shape and dimensions across the disc space between two adjacent vertebrae of the spine, each of the two adjacent vertebrae having a vertebral endplate adjacent to the disc space, said apparatus comprising:

a milling block configured at least in part for placement against at least one of the two adjacent vertebrae, said milling block having at least front and rear faces and accessing means for accessing at least one of the two adjacent vertebrae from said rear face and through said front face of said milling block;

bone removal means for removing at least a portion of bone from at least one of the vertebral endplates adjacent the disc space, said bone removal means capable of accessing the vertebral end plates through said accessing means; and

means for firmly holding at least a portion of said milling block against at least one of the two adjacent vertebrae.

2. The apparatus of claim 1 including distractor means for distracting and placing the adjacent vertebrae to be fused in selected spatial relationship to each other.

3. The apparatus of claim 1 including aligning means for aligning said milling block relative to the two adjacent vertebrae.

4. The apparatus of claim 2 in which said distractor means comprises at least a first distractor member associated with said milling block extending beyond at least a portion of said front face of said milling block, said first distractor member capable of extending into the disc space between the two adjacent vertebrae when said milling block is placed against at least one of the two adjacent vertebrae.

5. The apparatus of claim 4 in which said first distractor

member has a length that is less than the depth of the disc space in which said first distractor member is inserted.

6. The apparatus of claim 4 in which said first distractor member is centrally placed in said front face of said milling block.

7. The apparatus of claim 4 comprising at least a second distractor member extending beyond at least a portion of said front face of said milling block.

8. The apparatus of claim 7 in which said first and second distractor members are laterally placed at opposite sides of said milling block.

9. The apparatus of claim 7 in which said first and second distractor members are joined together.

10. The apparatus of claim 4 in which said first distractor member has a leading end, a trailing end associated with said milling block, upper and lower surfaces for contacting each vertebral endplate adjacent to the disc space, and side walls extending from said upper surface to said lower surface, at least one of said side walls being at least in part concave.

11. The apparatus of claim 2 including distractor holder means for holding said distractor means in association with said milling block.

12. The apparatus of claim 11 in which said distractor holder means comprises depth limiting means for limiting the penetration depth of said distractor means into the disc space.

13. The apparatus of claim 12 including calibration means for selecting the penetration depth of said distractor means.

14. The apparatus of claim 13 in which said calibration means is integral to said apparatus.

15. The apparatus of claim 13 in which said calibration means engages at least a portion of said apparatus.

16. The apparatus of claim 12 including means for locking said distractor means at a selected penetration depth.

17. The apparatus of claim 11 in which said distractor holder means includes coupling means for coupling said distractor holder to said milling block.

18. The apparatus of claim 17 including means for aligning said distractor holder means relative to said milling block.

19. The apparatus of claim 11 in which at least a portion of said distractor means extends through said accessing means and extends beyond at least a portion of said front face and into the disc space when said milling block is placed against at least one of the two adjacent vertebrae.

20. The apparatus of claim 1 including guiding means associated with said milling block for guiding and controlling the path of motion of an instrument associated with said guiding means.

21. The apparatus of claim 20 in which said instrument is a bone removal means.

22. The apparatus of claim 20 in which said guiding means is in moveable relationship to said milling block for providing transverse motion of an instrument being guided by said guiding means.

23. The apparatus of claim 1 in which said milling block includes

supporting means for supporting said bone removal means relative to said milling block.

24. The apparatus of claim 20 in which said accessing means is in a transverse orientation relative to said milling block, said accessing means having a transverse axis and said guiding means being oriented and capable of traveling along said transverse axis.

25. The apparatus of claim 20 in which said accessing means is in a vertical orientation relative to said milling block, said accessing means having a vertical axis and said guiding means being oriented and capable of traveling along said vertical axis.

26. The apparatus of claim 25 in which said accessing means includes a vertical axis and said guiding means being oriented and capable of traveling along said transverse and vertical axes.

27. The apparatus of claim 1 including engagement means for engaging said milling block to at least one of the two adjacent vertebrae.

28. The apparatus of claims 27 in which said engagement means comprises a distractor means for distracting and placing the adjacent vertebrae to be fused in selected spatial relationship to each other.

29. The apparatus of claim 27 in which said engagement means includes means for fixedly securing said milling block to at least one of the two adjacent vertebrae.

30. The apparatus of claim 1 in which said front face of said milling block comprises at least a portion having a configuration capable of conforming to the shape of at least a portion of the anterior aspect of the adjacent vertebrae in contact with said milling block.

31. The apparatus of claim 1 in which said front face of said milling block comprises at least a portion having a configuration capable of conforming to the shape of the vertebrae along the posterior aspect of the lumbar spine on either side of the mid-sagittal axis of the adjacent vertebrae in contact with said milling block.

32. The apparatus of claim 1 in which said milling block comprises handle engagement means for engaging at least one handle.

33. The apparatus of claim 1 in which said accessing means is a track for guiding said bone removal means.

34. The apparatus of claim 33 including at least one track guide in moveable relationship with said track for guiding said bone removal means.

35. The apparatus of claim 1 in which said accessing means comprises at least one aperture.

36. The apparatus of claim 1 including depth limiting means for selecting and limiting the penetration depth of said bone removal means into the disc space.

37. The apparatus of claim 36 including means for locking said bone removal means at a selected penetration depth into the disc space.

38. The apparatus of claim 36 including calibration means for selecting the penetration depth of said bone removal means into the disc space.

39. The apparatus of claim 38 in which said calibration means is integral to said apparatus.

40. The apparatus of claim 38 in which said calibration means engages at least a portion of said apparatus.

41. The apparatus of claim 1 in which said bone removal means comprises a multi-toothed rotating cutter.

42. The apparatus of claim 1 in which said bone removal means comprises a cutting member having a cutting end and perimeter capable of cutting bone.

43. The apparatus of claim 42 in which said bone removal means comprises an end and side mill.

44. The apparatus of claim 1 in which said bone removal means comprises a drill.

45. The apparatus of claim 1 in which said bone removal means comprises a shaft portion having a first diameter and a cutting end having a second diameter, said second diameter being greater than said first diameter, whereby said bone removal means is capable of creating a space with retaining walls on the anterior and posterior aspects of the vertebral endplates.

46. The apparatus of claim 1 in which said bone removal means comprises an oscillating saw.

47. The apparatus of claim 1 in which said bone removal means is selected from' the group including burrs, mills, router bits, abraders, grinders, rasps, drills, graters and saws.

48. The apparatus of claim 1 in which said bone removal means is selected from a group including, oscillating cutters, vibrating cutters, reciprocating cutters and orbital cutters.

49. The apparatus of claim 1 in which said bone removal means

comprises a laser.

50. The apparatus of claim 1 in which said bone removal means has a longitudinal central axis oriented perpendicular to the vertical axis of the spine when said bone removal means is placed within said accessing means and said milling block is placed against at least one of the two adjacent vertebrae.

51. The apparatus of claim 1 including aligning means for aligning the two adjacent vertebrae in a selected angular relationship to each other.

52. The apparatus of claim 4 including means for adjusting the length in which said distractor member extends beyond at least a portion of said front face of said milling block.

53. The apparatus of claim 20 in which said guiding means is associated at least in part with said accessing means.

54. The apparatus of claim 1 in which said accessing means is capable of guiding and supporting said bone removal means.

55. An apparatus used in spinal surgery for creating a space of selected shape and dimensions across the disc space between two adjacent vertebrae of the spine, each of the two adjacent vertebrae having a vertebral endplate adjacent to the disc space, said apparatus comprising:

a separable milling block having separable first and second members, said first member having at least leading and trailing surfaces and a first accessing means for accessing at least one of the two adjacent vertebrae from said trailing surface and through said leading surface of said first member, said first member having guiding means for guiding and controlling the movement of an instrument placed within said first accessing means;

said second member having a front face configured at

least in part for placement against at least one of the two adjacent vertebrae and a rear face having a suitable configuration for interfacing with said leading surface of said first member, said second member having a second accessing means for accessing the disc space, said second accessing means being in communication with said first accessing means in said first member when said leading surface of said second member and said rear face of said first member are interfaced, said second member having at least one distractor element associated with said upper portion, said distractor element extending beyond at least a portion of said front face and capable of being inserted into the disc space for distracting and placing the adjacent vertebrae in selected spatial relationship to each other;

means for removably coupling said first member to said second member;

bone removal means for removing at least a portion of bone from at least one of the vertebral endplates adjacent the disc space, at least a portion of said bone removal means extending through said first and second accessing means to access the vertebral endplates; and

means for firmly holding at least a portion of said second member against at least one of the two adjacent vertebrae.

56. The apparatus of claim 55 in which said first accessing means includes at least one aperture in said first member.

57. The apparatus of claim 55 in which said second accessing means includes at least one aperture in said second member.

58. The apparatus of claim 55 in which said in which said instrument is a bone removal means.

59. The apparatus of claim 55 in which said holding means comprises said at least one distractor element.

60. The apparatus of claim 55 comprising at least a second distractor member extending beyond at least a portion of said front face of said milling block.

61. The apparatus of claim 60 in which said first and second distractor members are laterally placed at opposite sides of said milling block.

62. The apparatus of claim 60 in which said first and second distractor members are joined together.

63. The apparatus of claim 55 in which said guiding means is in moveable relationship to said milling block for providing transverse motion of an instrument being guided by said guiding means.

64. The apparatus of claim 55 in which said accessing means is in a transverse orientation relative to said milling block, said accessing means having a transverse axis and said guiding means being oriented and capable of traveling along said transverse axis.

65. The apparatus of claim 55 including engagement means for engaging said milling block to at least one of the two adjacent vertebrae.

66. The apparatus of claim 55 in which said accessing means is a track for guiding said bone removal means.

67. The apparatus of claim 66 including at least one track guide in moveable relationship with said track for guiding said bone removal means.

68. The apparatus of claim 55 including depth limiting means for selecting and limiting the penetration depth of said bone removal means into the disc space.

69. The apparatus of claim 68 including means for locking said bone removal means at a selected penetration depth into the disc space.

70. The apparatus of claim 55 in which said bone removal means comprises a multi-toothed rotating cutter.

71. The apparatus of claim 55 in which said bone removal means comprises a cutting member having a cutting end and perimeter capable of cutting bone.

72. The apparatus of claim 71 in which said bone removal means comprises an end and side mill.

73. The apparatus of claim 55 in which said bone removal means comprises a drill.

74. The apparatus of claim 55 in which said bone removal means comprises a shaft portion having a first diameter and a cutting end having a second diameter, said second diameter being greater than said first diameter, whereby said bone removal means is capable of creating a space with retaining walls on the anterior and posterior aspects of the vertebral endplates.

75. The apparatus of claim 55 in which said bone removal means comprises an oscillating saw.

76. The apparatus of claim 55 in which said bone removal means is selected from the group including burrs, mills, router bits, abraders, grinders, rasps, drills, graters and saws.

77. The apparatus of claim 55 in which said bone removal means is selected from a group including, oscillating cutters, vibrating cutters, reciprocating cutters and orbital cutters.

78. The apparatus of claim 58 in which said bone removal means comprises a laser.

79. An apparatus used in spinal surgery for creating a space of selected shape and dimensions across the disc space between two adjacent vertebrae of the spine, each of said vertebrae having an endplate adjacent to the disc space, said apparatus comprising:

an elongated body member dimensioned for accessing the spine from a position remote from the spine, said elongated body member having a front end, a rear end and accessing means for accessing the two adjacent vertebrae through said rear end and through said front end of said body member;

bone removal means for removing at least a portion of bone from each vertebral endplate adjacent the disc space, said bone removal means capable of accessing each vertebral endplate through said accessing means; and

guiding means for guiding and controlling the movement of an instrument placed within said accessing means, said guiding means associated in a moveable relationship with said front and rear ends of said elongated body member.

80. The apparatus of claim 79 including an outer sleeve having a hollow tubular portion capable of supporting and containing at least a portion of said elongated body member.

81. The apparatus of claim 80 in which said outer sleeve is a combination outer sleeve and distractor in which said tubular portion comprises at least one distractor element extending from a first end of said tubular portion for insertion into the disc space between the two adjacent vertebrae.

82. The apparatus of claim 79 in which said rear end of said body member is positioned outside of a patient's body when said front end in placed against the spine.

83. The apparatus of claim 79 in which said accessing means is in a transverse orientation relative to said milling block, said accessing means having a transverse axis and said guiding means being oriented and capable of traveling along said transverse axis.

84. The apparatus of claim 79 in which said accessing means is a track for guiding said bone removal means.

85. The apparatus of claim 84 including at least one track guide in moveable relationship with said track for guiding said bone removal means.

86. The apparatus of claim 79 including depth limiting means for selecting and limiting the penetration depth of said bone removal means into the disc space.

87. The apparatus of claim 86 including means for locking said bone removal means at a selected penetration depth into the disc space.

88. The apparatus of claim 79 in which said bone removal means comprises a multi-toothed rotating cutter.

89. The apparatus of claim 79 in which said bone removal means comprises a cutting member having a cutting end and perimeter capable of cutting bone.

90. The apparatus of claim 89 in which said bone removal means comprises an end and side mill.

91. The apparatus of claim 79 in which said bone removal means comprises a drill.

92. The apparatus of claim 79 in which said bone removal means comprises a shaft portion having a first diameter and a cutting end

having a second diameter, said second diameter being greater than said first diameter, whereby said bone removal means is capable of creating a space with retaining walls on the anterior and posterior aspects of the vertebral endplates.

93. The apparatus of claim 79 in which said bone removal means comprises an oscillating saw.

94. The apparatus of claim 79 in which said bone removal means is selected from the group including burrs, mills, router bits, abraders, grinders, rasps, drills, graters and saws.

95. The apparatus of claim 79 in which said bone removal means is selected from a group including, oscillating cutters, vibrating cutters, reciprocating cutters and orbital cutters.

96. The apparatus of claim 79 in which said bone removal means comprises a laser.

97. A surgical method for creating a space of selected shape and dimensions across a disc space between two adjacent vertebrae of the spine, each of the two adjacent vertebrae having an endplate adjacent to the disc space, comprising the steps of:

exposing the area of the spine to be operated upon;

placing at least a portion of a milling apparatus against at least one of the two adjacent vertebrae, said milling apparatus capable of holding the two adjacent vertebrae in a fixed position and having accessing means for accessing the two adjacent vertebrae through said milling apparatus, said milling apparatus including guiding means for guiding and controlling the motion of a bone removal means;

holding said milling apparatus against at least one of the two adjacent vertebrae; and

removing a portion of bone from the endplates of the two adjacent vertebrae with said bone removal means utilizing said

guiding means to guide said bone removal means in a selected path to create a space of selected shape and dimensions across the disc space and into the two adjacent vertebrae.

98. The surgical method of claim 97 including the step of distracting the two adjacent vertebrae in a selected spatial relationship to each other.

99. The surgical method of claim 98 in which the step of distracting includes preselecting the depth of excursion of a distractor means for insertion into the disc space and locking said preselected depth of excursion.

100. The surgical method of claim 98 including the step of attaching to said milling apparatus a distractor element selected for a length less than the depth of the disc space.

101. The surgical method of claim 98 including the step of determining the appropriate length of a distractor element and adjusting the length of the distractor to be less than the depth of the disc space.

102. The surgical method of claim 99 including the step of coupling said distractor means to said milling apparatus.

103. The surgical method of claim 97 in which the step of removing bone from said endplates includes preselecting the optimal depth of excursion of the bone removal means into the disc space.

104. The surgical method of claim 97 in which the step of removing a portion of bone from the endplates includes accessing the adjacent vertebrae through said accessing means.

105. The surgical method of claim 97 including the step of inserting at least one spinal implant into said created space.

106. The surgical method of claim 97 including the step of inserting at least one bone graft into said created space.

107. The surgical method of claim 97 including the step of inserting at least one fusion implant into said created space.

108. The surgical method of claim 97 including the step of inserting at least one artificial disc into said created space.

109. The surgical method of claim 97 including the step of securing said milling apparatus to at least one of the two adjacent vertebrae.

110. The surgical method of claim 97 in which the step of removing a portion of bone from the endplates includes the step of moving the bone removal means at an angle relative to the plane of the endplates to remove an angular portion of bone from each of the endplates creating an angular-shaped opening.

111. The surgical method of claim 97 in which said milling apparatus includes a separable milling block having separable first and second members, said surgical method including the steps of dissociating said first member from said second member, said second member remaining held against at least one of the two adjacent vertebrae keeping the adjacent vertebrae distracted while inserting at least one implant into the disc space through said accessing means.

112. The surgical method of claim 97 including the step of placing a hollow tubular member having one end in contact with at least a portion of at least one of the two adjacent vertebrae, said hollow tubular member capable of supporting and containing at least a portion of said milling apparatus; and inserting at least a portion of said milling apparatus through said hollow tubular member.

113. The surgical method of claim 112 in which said hollow tubular member has at least one distractor element extending from said one end for insertion into the disc space, using said distractor element to distract said two vertebrae in a selected spatial relationship to each other.

114. The surgical method of claim 97 including the steps of approaching the human spine from the posterior aspect of the two adjacent vertebrae; retracting the dural sac and nerve roots; placing against the spine a hollow tubular member capable of supporting and containing at least a portion of said milling apparatus, said hollow tubular member having one end in contact with at least a portion of the posterior aspect of the two adjacent vertebrae; and inserting into said hollow tubular member at least a portion of said milling apparatus.

115. The surgical method of claim 114 in which said milling apparatus comprises an elongated body member, said surgical method including the step of placing at least a portion of said elongated body member into said hollow tubular member.

116. The surgical method of claim 97 including the step of inserting a laparoscope into the human body for viewing at least a portion of the spine during at least a portion of said surgical method.

117. A power bone removal apparatus for use in human spinal surgery for creating a space across the disc space between two adjacent vertebrae of the spine, said bone removal apparatus comprising:

a bone cutting element capable of removing bone from the two vertebrae adjacent the disc space;

powered driving means for driving said bone cutting element, said power driving means having a driving end for imparting motion to said cutting element; and

length limiting means for selecting and limiting the

penetration depth of said cutting element into the adjacent vertebrae and into the depth of the disc space between the two adjacent vertebrae, said length limiting means being associated with said driving end and remaining stationarily fixed to said driving end while said cutting element is in motion.

118. The bone removal apparatus of claim 117 including means for locking said cutting element at a selected penetration depth into the disc space.

119. The bone removal apparatus of claim 117 including calibration means for selecting the penetration depth of said cutting element into the disc space.

120. The bone removal apparatus of claim 117 in which said cutting element is a multi-toothed rotating cutter.

121. The apparatus of claim 117 in which said cutting element has a cutting end and perimeter capable of cutting bone.

122. The bone removal apparatus of claim 121 in which said cutting element an end-side mill.

123. The bone removal apparatus of claim 120 in which said cutting element is a drill.

124. The bone removal apparatus of claim 120 in which said cutting element is selected from the group including burrs, mills, router bits, abraders, grinders, rasps, drills, and graters.